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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,522	02/11/2004	Vladimir Nikitin	HIT1P053/HSJ920030225US1	6800

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EXAMINER	
HABERMEHL, JAMES LEE	

ART UNIT	PAPER NUMBER
2651	

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/777,522	NIKITIN ET AL.	
	Examiner	Art Unit	
	James L. Habermehl	2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7,8,13,14 and 18-20* is/are rejected.

7)☒ Claim(s) *5,6,9-12,15-17 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11 Feb 04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. This Office action is in response to papers filed 11 February 2004, which papers have been placed of record in the file.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 7-8, 13-14, and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Macken et al. Macken et al. Figures 3-1 through 5-3 meet all the limitations of claims 1 and 19, including a magnetomechanically active structure (368/468/568) , a coil coupled to the magnetomechanically active structure (580), the magnetomechanically active structure responding to a magnetic field generated by the coil to expand and/or contract.

Regarding claim 2, the magnetomechanically active structure is generally toroidal shaped, as that is the general shape of electrical coils.

Regarding claim 3, Figures 3-2 and 5-1 show many layers in the magnetomechanically active structure.

Regarding claim 7, Figures 3-1 to 5-3 show the portion positioned away from the ABS is anchored because it depicts the slider as surrounding the whole combination of the magnetomechanically active structure plus the read and write heads.

Regarding claims 8 and 13, Figure 3-2 shows a second material coupled to the magnetomechanically active structure toward the ABS having a lower Young's modulus than the first material (370). Regarding claim 13, this material is on the opposite side of the write element with respect to the ABS.

Regarding claim 14, element 361/461 and element 365/465 are second and third layers of lower Young's modulus material extending from the layer of material toward the ABS.

Regarding claim 18, since Macken et al. meets the structural limitations of the claim, it also necessarily meets the functional limitation of wherein the magnetomechanically active structure contracts upon detection of a thermal asperity on the disk surface.

Regarding claim 20, Macken et al. shows magnetic media 106, at least one head 111, slider 110, and a control unit coupled to the head for controlling operation of the head 130.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macken et al. Macken et al. meets all the limitations of claim 4 for the reasons given above regarding claim 1, except that Macken et al. does not explicitly show a magnetization of the magnetomechanically active structure is set parallel to the air bearing surface. Macken et al. does show that the magnetomechanically active structure induces protrusion of the head into the air bearing surface in response to the magnetic field generated by the coil.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the magnetization parallel to the air bearing surface, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

6. Claims 5-6, 9-12, 15-17, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

Claim 5 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a magnetic head comprising the magnetomechanically active structure inducing contraction of the head away from the air bearing surface in response to the magnetic field generated by the coil when current is passed through the coil in a second direction opposite the first direction, as presented in the environment of claim 5. It is noted that the closest prior art, Macken et al., shows a magnetomechanically active structure similar to applicant's invention. However, Macken et al. fails to disclose inducing contraction of

the head away from the air bearing surface in response to the magnetic field generated by the coil when current is passed through the coil in a second direction opposite the first direction as claimed.

Claims 9 and 12 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a magnetic head comprising layers of material positioned between or coupled to the magnetomechanically active structure that have coefficients of expansion similar to the materials around them, as presented in the environment of claims 9 and 12. It is noted that the closest prior art, Macken et al., shows a magnetomechanically active structure similar to applicant's invention. However, Macken et al. fails to disclose layers of material positioned between or coupled to the magnetomechanically active structure that have coefficients of expansion similar to the materials around them as claimed.

Claim 10 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a magnetic head comprising a second material coupled to the magnetomechanically active structure positioned away from the air bearing surface, the second material having a lower Young's modulus than the first material, as presented in the environment of claim 10. It is noted that the closest prior art, Macken et al., shows a magnetomechanically active structure similar to applicant's invention. However, Macken et al. fails to disclose a second material coupled to the magnetomechanically active structure positioned away from the air bearing surface, the second material having a lower Young's modulus than the first material as claimed.

Claims 15-17 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a magnetic head comprising the magnetomechanically active structure is positioned between a read and a write element of the head, on an opposite side of a read element with respect to a write element of the head, or on an opposite side of a write element with respect to a read element of the head, as presented in the environment of claims 15-17. It is noted that the closest prior art, Macken et al., shows a magnetomechanically active structure similar to applicant's invention. However, Macken et al. fails to disclose the magnetomechanically active structure positioned with respect to the read and write elements of the head as claimed.

Claim 21 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a magnetic head comprising a thermal asperity detector coupled to the at least one head, wherein the magnetomechanically active structure of the head contracts upon detection of a thermal asperity on the disk surface, as presented in the environment of claim 21. It is noted that the closest prior art, Macken et al., shows a magnetomechanically active structure similar to applicant's invention. However, Macken et al. fails to disclose a thermal asperity detector coupled to the at least one head, wherein the magnetomechanically active structure of the head contracts upon detection of a thermal asperity on the disk surface as claimed.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Meyer Figures 2-9 show controlling head height using electromagnetic coils. Thurn et al. Figures 3-8 show adjusting pole tip recession during manufacture of the slider similar to the

aplicant's invention. Giel Figure 1 shows using a magnetostrictive element to position a non-flying head over the disk. JP5-151734 shows floating a slider using a magnetostrictive element.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James L. Habermehl whose telephone number is (571)272-7556. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (571)272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Habermehl/jlh
6 Mar 06

WONG
PRIMARY EXAMINER
for SPE Hoa T. Nguyen